

REMARKS

Claims 105-149 are pending. Claims 1-104 have been canceled in favor of new claims 105-149. The presently pending claims read on the elected invention.

Claims 47, 49 and 50 were rejected under 35 USC §112, first paragraph. These claims have been rewritten as new claims 136, 138 and 139, respectively. It is respectfully submitted that the rewritten claims are in full compliance with 35 USC §112

Claims 11, 30, 39 and 91 were rejected under 35 USC §112, second paragraph. Applicants have carefully considered the Examiner's comments and have rewritten the claims to overcome the rejection. More specifically, claims 11, 30, 39 and 91 have been rewritten as new revised claims 115, 119, 128 and 146, respectively.

Independent claims 39 and 91 were not rejected for any other reason. As such, it is believed that claims 128 and 146 which respectively correspond to these claims are in condition for allowance. Furthermore, claim 43 was indicated to be allowable if rewritten in independent form, and claim 13 was not rejected. As such, claims 136, 138, 139, 115, 119, 128, 146, 132 and 116 which respectively correspond to claims 47, 49, 50, 11, 30, 39, 91, 43 and 13 are believed to be allowable.

Claims 1, 9, 10, 14, 31-34 and 85 were rejected under 35 USC §102(b) as being anticipated by Honjo et al. These claims correspond to new claims 105, 113, 114, 117, 120-123

and 142, of which claims 105, 114, 120 and 121 are independent claims. These independent claims include features which are not taught or suggested by Honjo et al.

Claim 105 sets forth a secondary electronic optical system for converging secondary charged particles generated from the object, wherein the secondary charged particles emitted from the surface of the object at an angle at least 45 degrees relative to a normal line of the surface of the object pass through the secondary optical system.

Claim 114 sets forth the plurality of the charged particle beams are irradiated each at a position separated larger than a distance resolution of the secondary optical system.

Claim 120 includes the features that the primary electronic optical system is configured in such a manner that points of irradiation by the primary charged particles are formed on the surface of the sample in a two-dimensional way.

Claim 121 sets forth that the plurality of apertures are located within a range of a predetermined current density of the charged particles emitted from the beam source.

Honjo et al does not teach or suggest a secondary optical system for converging secondary charged particles generated from the object, or a secondary optical system with an E x B separator. Honjo et al also does not appear to disclose “wherein the irradiating points of the primary electron beams are disposed in rows N in a direction of transferring the sample and in columns M in a direction perpendicular to the direction of transferring the sample” as set forth in claim 135.

Claims 2-4 and 7 were rejected under 35 USC §103(a) as being unpatentable over Honjo et al. in view of Lo et al. These claims corresponds to new claims 106-108 and 111, respectively. Favorable reconsideration of this rejection is earnestly solicited.

Claims 106-108 and 111 depend directly or indirectly on independent claim 105, and include further limitations. Since claim 105 is allowable for the reasons discussed above, it is believed that claims 106-108 and 111 are also allowable, since Lo et al. fails to provide the teachings which Honjo et al. lacks. Furthermore, Lo et al. does not teach or suggest “a beam source for generating either one of the charged particles or the electromagnetic wave as a plurality of beams; a primary electronic optical system for irradiating the plurality of beams to the object of inspection held in the working chamber, and a secondary electronic optical system for converging secondary charged particles generated from the object and leading to an image processing system which forms an image based on the secondary charged particles” in claim 105.

Claims 5, 12, 29, 35-37, 40, 44, 84, 88 and 89 were rejected under 35 USC §103(a) as being anticipated over Honjo et al, in view of Brunner et al. Claim 12 was canceled in the revised claims, and the other claims correspond to new claims 109, 118, 124, 125, 126, 129, 133, 141, 143 and 144, respectively, wherein claims 118, 124, 125, 126, 133, 141, 143 and 144 are independent claims. Each of these independent claims includes unique features which are not disclosed or suggested by the cited art.

Brunner et al. neither discloses nor suggests “the separated secondary charged particles are delivered into a plurality of detectors so as to be detected through a secondary optical system having at least one stage lens” in revised claim 125.

Claim 118 includes the feature of separating the secondary charged particles from the first optical system by an $E \times B$ separator disposed between the objective lens and a lens at the side of a beam source.

Claim 124 includes the features of a primary charged particle beam irradiation device including a beam source and a plurality of primary charged particle beam irradiation systems having an optical axis, a lens and a deflector, each primary charged particle beam irradiation system being adapted to form a plurality of points of irradiation with primary electron beams on the surface of the sample using an aperture plate.

Claim 125 includes the features of a primary optical system having a single beam source for irradiating output beam to an aperture plate with a plurality of apertures, ... the separated secondary charged particles are delivered into a plurality of detectors so as to be detected through a secondary optical system having at least one stage lens.

Claim 126 includes the features of a primary optical system having a beam source with an integrated cathode for irradiating output beam to an aperture plate with a plurality of apertures and for focusing and irradiating beams passed through the plurality of apertures on a sample surface.

Claim 133 includes the features wherein the images of the secondary charged particles are formed on a deflecting main plane of the $E \times B$ separator.

Claim 141 includes the features wherein the plurality of beams are disposed of a two dimensional way.

Claim 143 includes the features of irradiating a beam emitted from a single beam source to an aperture plate with a plurality of apertures, and delivering the separated secondary charged particles through a secondary optical system having at least one stage lens into a plurality of detectors so as to be detected.

Claim 144 includes focusing and irradiating beams passed through the plurality of apertures onto a sample surface by a primary optical system, and delivering the separated secondary charged particles through a secondary optical system having at least one stage lens and into a plurality of detectors so as to be detected.

Claims 6 and 8 were rejected under 35 USC §103(a) as being unpatentable over Honjo et al. and Lo et al. in view of Davis et al. These claims correspond to new claims 110 and 112, respectively. Each of the new claims depends indirectly from new claim 105 and includes further limitations. Lo et al. and Davis et al. fail to provide the teachings which Honjo et al. lack. Accordingly, these claims distinguish over the combination of references.

Claims 38, 41, 42, 45, 90 and 92 were rejected under 35 USC §103(a) as being anticipated over Honjo et al. and Brunner et al. in view of Nakasuji. These claims respectively correspond to claims 127, 130, 131, 134, 145, 147. Independent claim 127 includes the features that the position of the single aperture plate in the direction of the optical axis thereof is disposed so as to minimize the difference in beam strength of the beams to be delivered from each aperture to the surface of the sample.

Independent claim 130 includes the features that the positions of the plurality of the apertures are disposed so as to correct a distortion of the primary optical system.

New claim 131 includes the features that the irradiating points of the primary electron beams are disposed in rows N and in columns M in a direction perpendicular to the direction of the rows.

New claim 145 includes the features that the plurality of apertures are located within a range of a predetermined current density of the charged particles emitted from the beam source.

New claim 147 includes the features that the secondary charged particles emitted from the surface of the object at an angle at least 45 degrees relative to a normal line of the surface of the object pass through the secondary optical system.

It is respectfully submitted that none of the cited references teach the features of the new independent claims. Accordingly, favorable reconsideration and withdrawal of the rejection are earnestly solicited.

Claim 46 was rejected under 35 USC §103(a) as being unpatentable over Honjo et al. and Brunner et al. in view of Herrmann et al. Claim 46 corresponds to new claim 135.

New claim 135 includes the features that the irradiating points of the primary electron beams are disposed in rows N in a direction of transferring the sample and in columns M in a direction perpendicular to the direction of transferring the sample. The cited art does not teach or suggest the features of new claim 135.

Claims 48, 83, 93 and 100 were rejected under 35 USC §103(a) as being unpatentable over Honjo et al. and Brunner et al. in view of Adamec. Favorable reconsideration of this rejection is earnestly solicited.

Claims 48, 83, 93 and 100 respectively correspond to new independent claims 137, 140, 148 and 149.

New claim 137 includes the features of an aperture plate with a plurality of apertures.

New claim 140 includes the features of irradiating an aperture plate having a plurality of apertures with each of the charged particle beams and focusing and scanning the plurality of beams formed by the plurality of the apertures on a sample surface by primary optical systems each of which comprises an optical axis, a lens and a deflector.

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New claim 148 includes the features of an aperture plate with a plurality of apertures.

Furthermore, these independent claims include the feature of “an aperture plate with a plurality of apertures, a plurality of lenses, and an E x B separator so as to irradiate a surface of a sample to be inspected with the beam emitted from the beam source, which the cited references fail to teach or suggest.

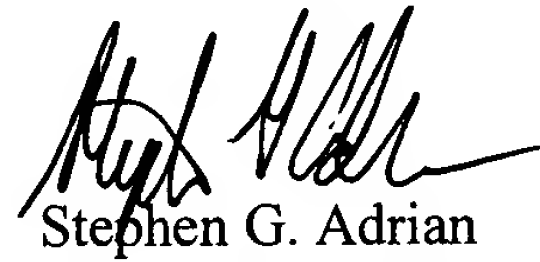
For at least the foregoing reasons, new claims 105-149 distinguish over the cited art and define patentable subject matter. Favorable reconsideration is earnestly solicited.

Should the Examiner deem that any further action by applicants would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone applicants' undersigned attorney.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 50-2866.

Respectfully submitted,

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